What is claimed is:

1. A method for creation of an opening of controllable format through a layer of insulation material, comprising:

   providing a semiconductor surface, a layer of insulation material having been deposited over the semiconductor surface;

   creating a layer of etch resist material over the surface of said layer of insulation;

   creating an opening through said layer of etch resist material;

   providing, including a feedback mechanism, for assuring that said opening created through said layer of etch resist material is within design specification;

   creating an opening through said layer of insulation material, whereby a diameter of said layer of insulation material is dependent on a diameter of said opening created through said layer of etch resist material; and

   providing, including a feedback mechanism, for assuring that said opening created through said layer of insulation material is within design specification.

2. The method of claim 1, said assuring that said opening created through said layer of etch resist material is within design specification comprising:

linking to a software supervisory function, thereby
including data transmission functions;

linking to a software function equally being linked to a
software supervisory function, thereby including data
transmission functions;

data manipulating capabilities, thereby including
manipulating interdependent data;

interfacing with semiconductor equipment, thereby including
equipment functioning in a supporting role to said semiconductor
equipment; and

creating instructions for said semiconductor equipment,
thereby including equipment functioning in a supporting role to
said semiconductor equipment.

3. The method of claim 1, said assuring that said opening created
through said layer of insulation material is within design
specification comprising:

linking to a software supervisory function, including data
transmission functions;

linking to a software function equally being linked to a
software supervisory function, including data transmission
functions;

data manipulating capabilities, including manipulating
interdependent data;

interfacing with semiconductor equipment, including

equipment functioning in a supporting role to said semiconductor

equipment; and

creating instructions for said semiconductor equipment,

including equipment functioning in a supporting role to said

semiconductor equipment.

4. The method of claim 1, further comprising creating an opening

having non-linear sidewalls through a layer of insulation

material by applying a high-polymer based etch to the surface of

said layer of insulation material.

5. A method for creation of an opening of controllable format

through a layer of insulation material, comprising the steps of:

providing a semiconductor surface, a layer of insulation

material having been deposited over the semiconductor surface;

providing software processing capabilities, said software

processing capabilities comprising:

(i) first software processing capabilities being photoresist

processing based; and

(ii) second software processing capabilities being

insulating layer etch based;

providing a parameter having a first value of After

Development Inspection Critical Dimension (ADI CD) to said first

software processing capability, said ADI CD being a diameter of an opening being created through a layer of photoresist;

evaluating issuance of a first instruction, comprising the steps of:

(i) a first instruction having been issued, modifying said first value of ADI CD based on said first instruction, creating a second value of ADI CD; and

(ii) no first instruction having been issued, converting said step of evaluation for a first instruction having been issued into a no-op or void step;

coating a layer of photoresist over the surface of said layer of insulation material;

developing said layer of photoresist, creating an opening having a diameter of a second value of ADI CD through said layer of photoresist;

measuring said second value of ADI CD;

determining a first difference between said second value of ADI CD and said first value of ADI CD;

creating said first instruction based on said first difference, said first instruction comprising:

(i) continuing processing said substrate, said instruction of continue processing said substrate being indicative of said first difference being less than a first ADI CD inspection limit, said continue processing said substrate proceeding with a

subsequently specified step of step of providing a parameter
having a value of said second value ADI CD to said second
software processing capability;

(ii) removing said developed layer of photoresist from the
surface of said layer of insulation material, further invoke said
step of modifying said first value of ADI CD based on said first
instruction, said first value of ADI CD of said modifying taking
on the value of said second value of ADI CD, followed by said
steps specified herein following said step of evaluating issuance
of a first instruction, said instruction of invoke said
modifying said first value of ADI CD based on a first instruction
being indicative of said first difference being less than a first
ADI CD inspection limit;

(iii) discontinuing processing said substrate, said
instruction of discontinue processing said substrate being
indicative of said first difference being more than a second ADI
CD inspection limit, said instruction of discontinue processing
said substrate further being indicative of a judgement that
processing said wafer must be discontinued;

executing said first instruction;

providing a parameter having a value of said second value
ADI CD to said second software processing capability;

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first modifying said second value of ADI CD based on an equation, creating a first value of After Etch Inspection Critical Dimension (AEI CD);

evaluating issuance of a second instruction, comprising the steps of:

(i) a second instruction having been issued, modifying said first value of AEI CD based on said second instruction, creating a second value of AEI CD; and

(ii) no second instruction having been issued, converting said step of evaluation for a second instruction having been issued into a no-op or void step;

etching an opening having a diameter of a second value of AEI CD through said layer of insulation;

measuring said second value of AEI CD;

determining a second difference between said second value of AEI CD and said first value of AEI CD;

determining said second instruction based on said second difference, said second instructions comprising:

(i) continuing processing said substrate, said instruction of continue processing said substrate being indicative of said first difference being less than a first AEI CD inspection limit, said continue processing said substrate resulting in termination of said second software processing, thereby releasing said

substrate for additional processing not under control of said

first and second software processing capabilities;

(ii) invoking said second modifying said first value of AEI

CD based on a second instruction, said first value of said second

modifying of AEI CD taking on the value of said second value of

AEI CD, followed by said steps specified herein following said

step of second modifying said first value of AEI CD based on a

second instruction, said instruction of invoke said modifying

said first value of AEI CD based on first instructions being

indicative of said first difference being less than a first AEI

CD inspection limit;

(iii) discontinuing processing said substrate, said

instruction of discontinue processing said substrate being

indicative of said first difference being more than a second ADI

CD inspection limit; and

executing said second instruction.

6. The method of claim 5, said first software processing

capabilities comprising functions of:

linking to a supervisory software function;

accepting first data from and providing first data to said

supervisory software function, thereby including data of ADI CD

and AEI CD;

calculating data, creating first output data, based on first

input data and in accordance with a first relationship as

embodied in a first equation between said first input data and

said first output data, thereby including calculating a first

output value for ADI CD based on a first input value of ADI CD;

providing to and accepting from photoresist processing

equipment data that relate to photoresist processing, thereby

including a value of ADI CD;

providing to and accepting from photoresist related

processing equipment instructions of or relating to performance

of operations by said photoresist related processing equipment,

thereby including an instruction to measure a diameter of an

opening created through said layer of photoresist, thereby

further including receiving first measurement results of a first

diameter of a first opening created through said layer of

photoresist;

calculating a first difference between numerical values,

thereby included calculating a first difference between a first

value of ADI CD and a measured value of ADI CD;

evaluating results obtained by said calculating a first

difference between numerical values; and

creating first instructions relating to said first software

processing capabilities being photoresist processing based,

thereby including first instructions of terminating photoresist

processing, of continuing photoresist processing or of invoking said function of calculating data, creating output data of said first software processing capabilities.

7. The method of claim 5, said second software processing capabilities comprising:

linking to said first software processing capabilities;

accepting second data from and providing second data to said second software processing capabilities, thereby including data of ADI CD and AEI CD;

calculating data, creating second output data, based on second input data and in accordance with a second relationship as embodied in a second equation between said second input data and said second output data, thereby including calculating a first output value for AEI CD based on a first input value of ADI CD, thereby further including calculating a second output value for AEI CD based on a second input value for AEI CD;

providing to and accepting from etch processing equipment data that relate to etch processing, thereby including a value of ADI CD, thereby further including a value of AEI CD;

providing to and accepting from etch related processing equipment instructions of or relating to performance of operations by said etch related processing equipment, thereby including an instruction to measure a diameter of an opening

created through said layer of insulation material, thereby
further including receiving first measurement results of a first
diameter of a first opening created through said layer of
insulation material ;

calculating a second difference between numerical values,
thereby included calculating a second difference between a first
value of AEI CD and a measured value of AEI CD;

evaluating results obtained by said calculating a second
difference between numerical values; and

creating second instructions relating to said second
software processing capabilities being etch processing based,
thereby including second instructions of terminating etch
processing, of continuing etch processing or of invoking said
function of calculating data, creating output data of said second
software processing capabilities.

8. A system for creation of an opening of controllable format
through a layer of insulation material, comprising:

means for creating an opening through a layer of etch resist
material provided over the surface of a layer of insulating
material having been deposited over the surface of a substrate;

means, including a feedback mechanism, for assuring that
said opening created through said layer of etch resist material
is within design specification;

means for creating an opening through said layer of insulation material, whereby a diameter of said layer of insulation material is dependent on a diameter of said opening created through said layer of etch resist material; and

means, including a feedback mechanism, for assuring that said opening created through said layer of insulation material is within design specification.

9. The system of claim 8, said means for assuring that said opening created through said layer of etch resist material is within design specification comprising:

means for linking to a software supervisory function, thereby including data transmission functions;

means for linking to a software function equally being linked to a software supervisory function, thereby including data transmission functions;

means for data manipulating capabilities, thereby including manipulating interdependent data;

means for interfacing with semiconductor equipment, thereby including equipment functioning in a supporting role to said semiconductor equipment; and

means for creating instructions for said semiconductor equipment, thereby including equipment functioning in a supporting role to said semiconductor equipment.

10. The system of claim 8, said means for assuring that said opening created through said layer of insulation material is within design specification comprising:

means for linking to a software supervisory function, thereby including data transmission functions;

means for linking to a software function equally being linked to a software supervisory function, thereby including data transmission functions;

means for data manipulating capabilities, thereby including manipulating interdependent data;

means for interfacing with semiconductor equipment, thereby including equipment functioning in a supporting role to said semiconductor equipment; and

means for creating instructions for said semiconductor equipment, thereby including equipment functioning in a supporting role to said semiconductor equipment.

11. The system of claim 8, further comprising means for creating an opening having non-linear sidewalls through a layer of insulation material by applying a high-polymer based etch to the surface of said layer of insulation material.

12. A system for creation of an opening of controllable format through a layer of insulation material, comprising:

means for software processing capabilities, said software

processing capabilities comprising:

(i) first software processing capabilities being photoresist

processing based; and

(ii) second software processing capabilities being

insulating layer etch based;

means for providing a parameter having a first value of

After Development Inspection Critical Dimension (ADI CD) to said

first software processing capability, said ADI CD being a

diameter of an opening being created through a layer of

photoresist;

means for evaluating issuance of a first instruction,

comprising:

(i) a first instruction having been issued, modifying said

first value of ADI CD based on said first instruction, creating a

second value of ADI CD; and

(ii) no first instruction having been issued, converting

said step of evaluation for a first instruction having been

issued into a no-op or void step;

means for coating a layer of photoresist over the surface of

said layer of insulation material;

means for developing said layer of photoresist, creating an

opening having a diameter of a second value of ADI CD through

said layer of photoresist;

means for measuring said second value of ADI CD;

means for determining a first difference between said second value of ADI CD and said first value of ADI CD;

means for creating said first instruction based on said first difference, said first instruction comprising:

(i) continuing processing said substrate, said instruction of continue processing said substrate being indicative of said first difference being less than a first ADI CD inspection limit, said continue processing said substrate proceeding with a subsequently specified step of step of providing a parameter having a value of said second value ADI CD to said second software processing capability;

(ii) removing said developed layer of photoresist from the surface of said layer of insulation material, further invoke said step of modifying said first value of ADI CD based on said first instruction, said first value of ADI CD of said modifying taking on the value of said second value of ADI CD, followed by said steps specified herein following said step of evaluating issuance of a first instruction, said instruction of invoke said modifying said first value of ADI CD based on a first instruction being indicative of said first difference being less than a first ADI CD inspection limit;

(iii) discontinuing processing said substrate, said instruction of discontinue processing said substrate being

indicative of said first difference being more than a second ADI CD inspection limit, said instruction of discontinue processing said substrate further being indicative of a judgement that processing said wafer must be discontinued;

manes for executing said first instruction;

means for providing a parameter having a value of said second value ADI CD to said second software processing capability;

means for first modifying said second value of ADI CD based on an equation, creating a first value of After Etch Inspection Critical Dimension (AEI CD);

means for evaluating issuance of a second instruction, comprising:

(i) a second instruction having been issued, modifying said first value of AEI CD based on said second instruction, creating a second value of AEI CD; and

(ii) no second instruction having been issued, converting said step of evaluation for a second instruction having been issued into a no-op or void step;

means for etching an opening having a diameter of a second value of AEI CD through said layer of insulation;

means for measuring said second value of AEI CD;

means for determining a second difference between said second value of AEI CD and said first value of AEI CD;

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means for determining said second instruction based on said
second difference, said second instructions comprising:

(i) continuing processing said substrate, said instruction
of continue processing said substrate being indicative of said
first difference being less than a first AEI CD inspection limit,
said continue processing said substrate resulting in termination
of said second software processing, thereby releasing said
substrate for additional processing not under control of said
first and second software processing capabilities;

(ii) invoking said second modifying said first value of AEI
CD based on a second instruction, said first value of said second
modifying of AEI CD taking on the value of said second value of
AEI CD, followed by said steps specified herein following said
step of second modifying said first value of AEI CD based on a
second instruction, said instruction of invoke said modifying
said first value of AEI CD based on first instructions being
indicative of said first difference being less than a first AEI
CD inspection limit;

(iii) discontinuing processing said substrate, said
instruction of discontinue processing said substrate being
indicative of said first difference being more than a second ADI
CD inspection limit; and

means for executing said second instruction.

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13. The system of claim 12, said first software processing capabilities comprising:

means for linking to a supervisory software function;

means for accepting first data from and providing first data to said supervisory software function, thereby including data of ADI CD and AEI CD;

means for calculating data, creating first output data, based on first input data and in accordance with a first relationship as embodied in a first equation between said first input data and said first output data, thereby including calculating a first output value for ADI CD based on a first input value of ADI CD;

means for providing to and accepting from photoresist processing equipment data that relate to photoresist processing, thereby including a value of ADI CD;

means for providing to and accepting from photoresist related processing equipment instructions of or relating to performance of operations by said photoresist related processing equipment, thereby including an instruction to measure a diameter of an opening created through said layer of photoresist, thereby further including receiving first measurement results of a first diameter of a first opening created through said layer of photoresist;

means for calculating a first difference between numerical values, thereby included calculating a first difference between a first value of ADI CD and a measured value of ADI CD;

means for evaluating results obtained by said calculating a first difference between numerical values; and

means for creating first instructions relating to said first software processing capabilities being photoresist processing based, thereby including first instructions of terminating photoresist processing, of continuing photoresist processing or of invoking said function of calculating data, creating output data of said first software processing capabilities.

14. The system of claim 12, said second software processing capabilities comprising:

means for linking to said first software processing capabilities;

means for accepting second data from and providing second data to said second software processing capabilities, thereby including data of ADI CD and AEI CD;

means for calculating data, creating second output data, based on second input data and in accordance with a second relationship as embodied in a second equation between said second input data and said second output data, thereby including calculating a first output value for AEI CD based on a first

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input value of ADI CD, thereby further including calculating a second output value for AEI CD based on a second input value for AEI CD;

means for providing to and accepting from etch processing equipment data that relate to etch processing, thereby including a value of ADI CD, thereby further including a value of AEI CD;

means for providing to and accepting from etch related processing equipment instructions of or relating to performance of operations by said etch related processing equipment, thereby including an instruction to measure a diameter of an opening created through said layer of insulation material, thereby further including receiving first measurement results of a first diameter of a first opening created through said layer of insulation material ;

means for calculating a second difference between numerical values, thereby included calculating a second difference between a first value of AEI CD and a measured value of AEI CD;

means for evaluating results obtained by said calculating a second difference between numerical values; and

means for creating second instructions relating to said second software processing capabilities being etch processing based, thereby including second instructions of terminating etch processing, of continuing etch processing or of invoking said

function of calculating data, creating output data of said second

software processing capabilities.